



Natural Heritage & Endangered Species Program

Massachusetts Division of Fisheries & Wildlife

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Ebony Boghaunter Dragonfly

Williamsonia fletcheri

State Status: **Endangered**

Federal Status: None

DESCRIPTION OF ADULT: The Ebony Boghaunter (*Williamsonia fletcheri*) is a small, delicately built, blackish dragonfly (order Odonata, sub-order Anisoptera). It is one of the smallest members of the emerald family (Corduliidae). Ebony Boghaunters are dull black in color, with bright green (male) or grey (female) eyes, a metallic brassy green frons (the prominent bulge on the front of the head), and a yellow-brown labium. The black abdomen has a pale yellow-white ring between the 2nd and 3rd abdominal segments (all Odonates have 10 abdominal segments), and a less conspicuous ring between the 3rd and 4th segments. Females are similar to the males, but have thicker abdomens, shorter terminal appendages at the tip of the abdomen, and are paler in coloration.

Ebony Boghaunters range in length from 1.2 to 1.5 inches (32 to 34mm), with males averaging slightly larger. The wings are about 1.1 inches (22 mm) long and hyaline (transparent and colorless), except for a very small amber patch at the base. The nymph was undescribed until recently (Charlton & Cannings, 1993). When fully developed, the nymphs average about 0.6 inch (15 to 17mm) in length, and can be identified using the keys in Soltesz (1996).

SIMILAR SPECIES: The genus *Williamsonia* comprises just two species, both found only in northeastern North America. The Ringed Boghaunter (*W. lintneri*) is similar in appearance to the Ebony Boghaunter; both occupy roughly similar habitats and have been found to occur in the same sites where their ranges overlap. The Ringed Boghaunter is somewhat paler in coloration than the Ebony Boghaunter, has dull orange rings on each abdominal segment, and has blue-grey eyes in both sexes. The Ebony Boghaunter has only one or two prominently colored yellow-white rings near the base of the abdomen, and the eyes of mature males are bright green.

The Petite Emerald (*Dorocordulia lepida*) has a flight season overlapping that of Ebony Boghaunter and is similar in its dark overall coloration, slight build, and metallic green frons with a yellow-brown labium. However, the Petite Emerald is slightly larger with a metallic luster on its thorax, lacks abdominal rings, and has brilliant green eyes when mature.

Another dragonfly, the Frosted Whiteface (*Leucorrhinia frigida*), also flies early in the season and occurs in the same habitat. It is similar in size and general appearance, the mature



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males being black in coloration. However, they have a grayish patch at the base of the abdomen and a white face. Other species of *Leucorrhinia* also have a superficial resemblance and overlapping flight seasons, but can be distinguished from Ebony Boghaunters by their white faces and differing abdominal patterns.

HABITAT: Ebony Boghaunters inhabit wet sphagnum bogs and swampy northern wetlands, often with soupy sphagnum pools, typically adjacent to coniferous or mixed coniferous/deciduous woodlands where the adults hunt and roost. Their specific habitat requirements, however, are not well understood, as they seem to be absent from many apparently suitable wetlands within the species' range.

LIFE-HISTORY/BEHAVIOR: The life cycle of the Ebony Boghaunter is poorly known. The adults have a brief and early flight season, from early May to mid-June. They are most often found along dirt roads and trails, or in small clearings in woodlands near the breeding sites. However, they can be very inconspicuous due to their small size, dark coloration, and rather sedentary behavior. They typically perch in small sunlit patches of the forest floor on logs or vertically on tree trunks, occasionally making brief flights to capture small insect prey.

EBONY BOGHAUNTER FLIGHT PERIOD

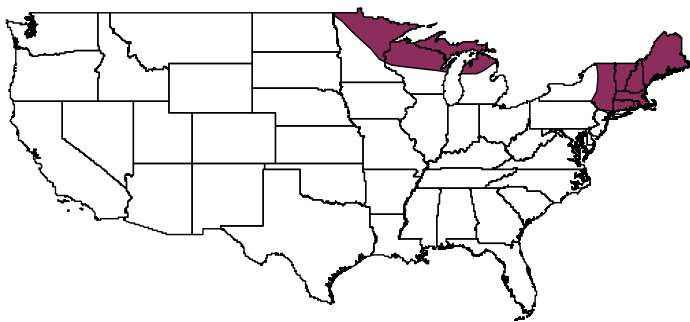
Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec

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Mating behavior has been observed only rarely. Although it has been suggested that the species is not territorial, at one Massachusetts site males were observed exhibiting apparently territorial behavior over soupy sphagnum at a bog/pond interface. The males actively chased, and were chased by, others of their own species as well as by male Hudsonian Whitefaces (*Leucorrhinia hudsonica*). Mating pairs have been seen at the periphery of bogs and in woodland openings nearby. After mating, the females are thought to oviposit alone in the bog pools, depositing their eggs in flight by tapping the water surface with the tip of their abdomens.

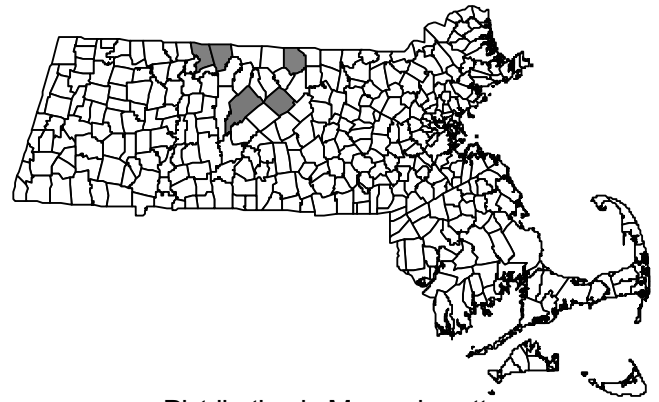
The nymphs of the Ebony Boghaunter are aquatic and presumably feed mostly on aquatic invertebrates. They emerge from the water in May to transform into winged adults. It is not known how many years are necessary for larvae to complete their development, though in most small dragonflies larval development time is one year. Larval habitat is not well known, but may be similar to that of the Ringed Boghaunter, whose larvae develop in shallow pools 6 to 12 inches (15 to 30 cm) deep, among sphagnum mats. At one Massachusetts site, a recently emerged adult was found clinging to a small leatherleaf (*Chamaedaphne calyculata*) shrub about a foot above the sphagnum mat and an exuviae was found nearby, also attached to a leatherleaf stalk.

RANGE: The Ebony Boghaunter appears to be very local in distribution. It has been found only in widely scattered bogs from Nova Scotia and New Brunswick west to Manitoba, and south to Minnesota, Michigan, Wisconsin, New York and Massachusetts. It may be that the particular aquatic microhabitats necessary for successful larval development are a major factor limiting the distribution of this species.



Range of Species in US

POPULATION STATUS IN MASSACHUSETTS: The Ebony Boghaunter is listed as an Endangered Species in Massachusetts. The species is known from a handful of sphagnum bogs and boggy wetlands in central Massachusetts. At one of the recent sites, a fairly sizable population seems to be



Distribution in Massachusetts
1977 - 2002

Based on records in Natural Heritage Database

present. Additional field work should be done at other sites to determine the size of their populations. It is likely that the Ebony Boghaunter inhabits other sites in the state and searches in appropriate habitat, particularly in the Worcester/Monadnock ecoregion, should be conducted.

MANAGEMENT RECOMMENDATIONS: The primary threat to this species is habitat destruction through physical alteration or pollution. Artificial changes in water level and various forms of pollution, such as road and agricultural runoff, septic system failure, and insecticides are all potential dangers. It is important to protect surrounding uplands, as they provide roosting, hunting, and mating habitat. In some portions of its range, the Ebony Boghaunter's habitat is under pressure from development, logging, and peat mining interests. However, in Massachusetts the known sites are mostly within protected land, much of it state-owned. The managers of these properties should be made aware of the presence of Ebony Boghaunters and advised of the species' requirements. Searches should be conducted in other bogs in the state from mid May to mid June to determine if the species is present elsewhere.

REFERENCES:

- Dunkle, S.W. 2000. Dragonflies Through Binoculars. Oxford University Press.
- Charlton, R.E. 1985. A colony of *Williamsonia fletcheri* discovered in Massachusetts. Ent. News. 96:201-204.
- Charlton, R.E., and R.A. Cannings. 1993. The larva of *Williamsonia fletcheri*. Odonatologica. 22:335-343.
- Needham, J. G., M. J. Westfall, Jr., and M.L. May. 2000. Manual of the Dragonflies of North America.
- Nikula, B., J.L. Loose, and M.R. Burne. 2003. A Field Guide to the Dragonflies and Damselflies of Massachusetts. Massachusetts Natural Heritage and Endangered Species Program.
- Soltész, K. 1996. Identification Keys to Northeastern Anisoptera Larvae. Center for Conservation and Biodiversity, University of Connecticut.
- Walker, E.M. and P.S. Corbet. 1975. The Odonata of Canada and Alaska, Volume III. University of Toronto Press.